PATENT SPECIFICATION

704,949

Inventor: EDWARD PILLING

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COMPLETE SPECIFICATION

A New or Improved Embossing Press

We, ENTWISTLE & WALKER LIMITED, a British Company, of Emblem Works, Derby Street, Bolton, Lancashire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a machine for the embossing of book covers, and other like articles, its primary use being in libraries and publishing houses for the impression of ownership marks, initials, index numbers and other matter into cardboard, millboard and like material (e.g. book-cases) whether uncovered or covered with a cloth or other facing material.

The invention aims at providing a machine which requires the minimum of effort on the part of the operator, which is easily movable from place to place, and with which the operator can work either sitting or standing, all movements in feeding work to the machine and removing it from the machine being conveniently made. Other objects of the invention are to provide easy means of interchanging the dies by which the embossed impressions are made.

A machine according to the invention comprises a stand or frame with an overhanging arm or head thereon, a heated die stationary in the frame below such head, a slidable ram in the head movable towards and away from the die, and a lever and link mechanism within the head and frame, operating by a foot pedal, for creating a heavy pressure between the ram and the die, and is characterised in that such lever and link mechanism consists of a stout lever (within the said arm or head), pivotally supported at the forward end and engaging the ram at the same end, and a link connecting the rearward end of that lever to the pedal lever, near to the fulcrum of the latter, whereby a moderate pressure on the foot pedal creates a high pressure (up to one ton or thereabouts) between the ram and the die. Usually there will be thermostatic means for regulating the temperature of the stationary die, and with or without a pilot or indicator lamp to show when the heaters are in circuit.

[*Price* 2/8]

In convenient forms of the invention, the said frame or stand comprises an enclosed box-like structure, with one or more sliding doors or shutters, and with the foot pedal disposed in a recess in one wall of that structure.

Spring means may be provided to counterbalance the said stout lever, and other spring means may counter-balance the pedal lever, and there may be a resilient contact between the ram and its associated lever.

It is preferred that the stationary die be let into a recess in the machine, and to facilitate its removal (for interchange or renewal) the lower part of the ram may be removable. The machine may comprise adjustable work guides for positioning the article to be embossed; means for adjusting the length of the link between the top lever and the pedal lever (for example to allow for strain in the link); means for holding a roll of tape carrying coloured or plain embossing material; and means for automatically advancing the tape after each operation of the press.

One representative example of the improved machine is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of the machine, with cover plates or doors wholly or partly removed to expose the interior;

Fig. 2 is a sectional side view with the parts in the normal or "at-rest" position; and

Fig. 3 is a similar view to Fig. 2 with the parts in the operating position.

As shown, there is a box-like structure built of metal panels 1 on an angle-iron frame 2, the vertical angles being braced by suitable cross bars 3, and the panel 2*a* is slidable on guides 4, to give acess to the interior of the structure. The box-like casing has a narrow front, and longer sides, and is roughly of table height. At the lower part of the front wall is an elongated recess 5, into which projects the forward end 6 of a pedal lever 7 pivotally mounted on a pin 8 carried in brackets 9 in the interior frame of the structure.

Secured on the top of this structure is a robust casting, embodying a platen or table-like front portion 10, above which there is a heavily-built overhanging arm 11. In one

side of this casting there is a removal plate (not present in Fig. 1) giving access to the interior. Mounted within the casting, on a pivot 12 at the forward end of the overhanging arm 11, is a stout lever 13, the rear end of which is of reduced height, and has an open-topped cavity 14 therein, in which lies a stout round pin 15. Through this pin 15 passes the upper end of a pull rod 16, the lower end of that rod being pivotally attached at 17 to the before-mentioned pedal lever 7, near to its pivot 8. A nut 18 screws on to the upper end of the pull rod 16 and lies on the round pin 15, the under face of the nut having diametral grooves to rest on the pin in various adjusted positions. The under side of the lever 13 has a depending plate 19 welded thereto at the rear end, to which plate is attached one end of a tension spring 20, whose other end is attached to the interior of the casting 11. This spring 20 serves to counter-balance the weight of the lever 13. Also, within the said box-like structure forming the body of the machine, other tension springs 20*a* are attached to the pedal lever 7 and to one of the cross bars 3 of the frame, to counter-balance the weight of the pedal lever 7 and the pull rod 16. The upper extremity of the pull rod 16 may have a rubber or like tip, to absorb shock and silence any contact of the rod with the top wall of the casting 11 on the return (upward) movement.

Vertically-slidable in the said overhanging arm 11 is a stout cylindrical ram 21, having a transverse opening through which the said lever 13 passes, the horizontal pivot 12 of the lever being near to the vertical axis of the ram 21. The bottom and top faces of such slot in the ram are suitably curved to provide a rolling surface for the underface of the lever (see Figs. 2 and 3). The top end of the ram 21 is bored axially to receive a screwed plug 22 which compresses a spring 23 against a ball 24 resting on the top face of the lever 13. This maintains contact between the bottom face of the slot and the bottom of the lever.

In the said platen 10 is a circular recess 25, to house a holster 26 for holding a circular die 27, and below the die are two cartridge heaters 28 (there may be more than two) wired in circuit with a neon lamp 29 visible through an opening in the front face of the box-like structure, and with a thermostat 30, adjustable by means of a rotary knob also on the front face of the box-like structure.

The lower end 21*a* of the ram 21 is detachable, and has a diametral rib 21*b* on its lower face to fit a corresponding groove in the upper face of the die 21*a*, a set screw 31 being provided to hold the parts together. Also, there are suitable adjustable metal guides 32 on the platen, for positioning the work both in a cross-wise and in a rearward direction.

There is a slotted bracket 33 on the side of the machine to hold a reel or spool 34 of tape carrying a coloured embossing material, and at the other side there is a similar bracket 35 to hold a winding reel or spool 36, and this may be rotated by hand or there may be means such as a ratchet or like mechanism, operated by the foot for advancing the tape after each depression of the pedal 6. The tape passes across the machine and over the lower die 27.

In operation, the guides 32 having been suitably positioned, and the tape having been threaded across the machine, with the lower die heated to a suitable temperature, a book cover or the like is placed over the lower die, the operator's two hands being free to manipulate the work. The pedal 6 is now depressed by the operator's foot, which brings the ram down on to the work with considerable pressure. The pedal is held depressed for the required length of time and is then released, whereupon the embossed work may be withdrawn.

On the side of the machine head there may be provision for a counter or meter, to record the number of operations of the machine.

What we claim is:—

1. An embossing press for the purpose set forth comprising a stand or frame with an overhanging arm or head thereon, a heated die stationary in the frame below such head, a slidable ram in the head movable towards and away from the die, and a lever and link mechanism within the head and frame, operated by a foot pedal, for creating a heavy pressure between the ram and the die, and wherein said lever and link mechanism consists of a stout lever (within the said arm or head), pivotally supported at the forward end and engaging the ram at the same end, and a link connecting the rearward end of that lever to the pedal lever, near to the fulcrum of the latter, whereby a moderate pressure on the foot pedal creates a high pressure (up to one ton or thereabouts) between the ram and the die.

2. An embossing press according to Claim 1, wherein there is thermostatic means for regulating the temperature of the stationary die, and with or without a pilot or indicator lamp to show when the heaters are in circuit.

3. An embossing press according to Claim 1 or 2, wherein the said frame or stand comprises an enclosed box-like structure, with one or more sliding doors or shutters, and with the foot pedal disposed in a recess in one wall of that structure.

4. An embossing press according to any

preceding claim, having spring means to counter-balance the said stout lever, and other spring means to counter-balance the pedal lever, with or without a resilient contact between the ram and its associated lever.

5. An embossing press according to any of the preceding claims, wherein the stationary die is let into a recess in the machine, and to facilitate its removal (for interchange or renewal) the lower part of the ram is removable.

6. An embossing press according to any of the preceding claims having means for holding a roll of tape carrying embossing material and for feeding the tape step-by-step between the dies, with or without means for the automatic advancement of the tape after each operation of the press.

7. An embossing press according to any preceding claim, wherein the front end of said lever passes through a slot in the ram, the lever-engaging face or faces of the slot being curved to allow of a rolling contact, the rear end of the lever being of reduced height, being slotted in the top face to hold a stout round pin, and the lever and pin being transfixed by the upper end of the link, which end is screw-threaded to engage a nut resting on said pin.

8. An embossing press according to Claim 1 and substantially as in the example herein described and illustrated.

For the Applicants,
SYDNEY E. M'CAW,
Chartered Patent Agent,
15, Cross Street, Manchester 2.

PROVISIONAL SPECIFICATION

A New or Improved Embossing Press

We, ENTWISTLE & WALKER LIMITED, a British Company, of Emblem Works, Derby Street, Bolton, Lancashire, do hereby declare this invention to be described in the following statement:—

This invention relates to a machine for the embossing of book covers, and other like articles, its primary use being in libraries and publishing houses for the impression of initials, index numbers and other matter into cardboard, millboard and like material (e.g. book cases) whether uncovered or covered with a cloth or other facing material.

The invention aims at providing a machine which requires the minimum of effort on the part of the operator, which is easily movable from place to place, and with which the operator can work either sitting or standing, with only convenient movements in feeding work to the machine and removing it therefrom. Other objects of the invention are to reduce the number of working parts to a minimum, and to provide easy means of interchanging the dies by which the embossed impressions are made.

A machine according to the invention comprises a stand or frame with an overhanging arm or head thereon, a heated die stationary in the frame below such head, a slidable ram in the head movable towards and away from the die, and a lever and link mechanism within the head and frame, operated by a foot pedal, for creating a heavy pressure between the ram and the die. Usually there will be means for heating the stationary die, preferably with thermostatic means for regulating the temperature of the die, and with or without a pilot or indicator lamp to show when the heaters are in circuit.

In convenient forms of the invention, the said frame or stand comprises an enclosed box-like structure, with one or more sliding doors or shutters, and with the foot pedal disposed in a recess in one wall of that structure.

The invention may be characterised by a mechanism consisting of a stout lever (within the said arm or head) pivotally supported at one end and engaging the ram at the same end, and a link connecting the other end of that lever, to the pedal lever near to the fulcrum of the latter, whereby a moderate pressure on the foot pedal creates a high pressure (up to one ton or thereabouts) between the ram and the die. Spring means may be provided to counter balance the said stout lever, and other spring means may counter balance the pedal lever, and there may be a resilient contact between the ram and its associated lever.

It is preferred that the stationary die be let into a recess in the machine, and to facilitate its removal (for interchange or renewal) the lower part of the ram may be removable. Other possible improvements may comprise adjustable work guides for positioning the article to be embossed; means for adjusting the length of the link between the top lever and the pedal lever (for example to allow for strain in the link); means for holding a roll of tape carrying coloured embossing material; and means for automatically advancing the tape after each operation of the press.

In one example of machine according to the invention, there is a box-like structure built of metal panels on an angle-iron frame, the vertical angles being braced by suitable cross bars, and at least one of the panels is slidable in guides, to give acess to the interior of the structure. The box-like casing has a narrow front, and longer sides, and is

roughly of table height. At the lower part of the front wall is an elongated recess, into which projects the forward end of a pedal lever pivotally mounted on the interior frame of the structure.

Secured on the top of this structure is a robust casting, embodying a platen or table-like front portion, above which there is a heavily-built overhanging arm. In one side of this casting there is a removal plate giving access to the interior. Mounted within this casting, at the forward end of the overhanging arm, is a stout lever, the rear end of which is of reduced height, and has an open-topped cavity therein, in which lies a stout round pin. Through this pin passes the upper end of a pull rod, the lower end of that rod carrying a yoke which fits over and is pivotally attached to the before-mentioned pedal lever, near to its pivot. A nut screws on to the upper end of the pull rod and lies on the round pin, the under face of the nut having diametral grooves to rest on the pin in various adjusted positions. The under side of the lever has a depending plate welded thereto, to which is attached one end of a tension spring, whose other end is attached to the interior of the casting. This spring serves to counter balance the weight of the lever. Also, within the box-like structure, other tension springs are attached to the pedal lever and to one of the cross bars of the frame, to counter balance the weight of the pedal lever and the pull rod. The upper extremity of the pull rod may have a rubber or like tip, to absorb shock and silence any contact of the rod with the top wall of the casting on the return (upward) movement.

Vertically-slidable in the said overhanging arm is a stout ram, having a transverse opening through which the said lever passes, the horizontal pivot of the lever being near to the vertical axis of the ram. The bottom face of such slot in the ram is suitably curved to provide a rolling surface for the underface of the lever. The top end of the ram is bored axially to receive a screwed plug which compresses a spring against a ball resting on the top face of the lever. This maintains contact between the bottom face of the slot and the bottom of the lever.

In the said platen is a circular recess, to house a circular die, and below the die are two cartridge heaters wired in circuit with a neon lamp visible through an opening in the front face of the box-like structure, and with a thermostat, adjustable by means of a rotary knob also on the front face of the box-like structure.

The lower end of the ram is detachable, and has a diametral rib on its top face to fit a corresponding groove in the lower end of the main body of the ram, a set screw being provided to hold the parts together. Also, there are suitable adjustable metal guides on the platen, for positioning the work both in a cross-wise and in a rearward direction.

There may be a bracket on the side of the machine to hold a strip of tape carrying a coloured embossing material, and at the other side there may be a ratchet or like mechanism, operated by the foot for advancing the tape after each depression of the pedal.

For the Applicants,
SYDNEY E. M'CAW,
Chartered Patent Agent,
Plas-y-Coed, Llanfairfechan,
North Wales.

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704,949 COMPLETE SPECIFICATION

3 SHEETS

This drawing is a reproduction of the Original on a reduced scale.

SHEET 1

Fig.1.

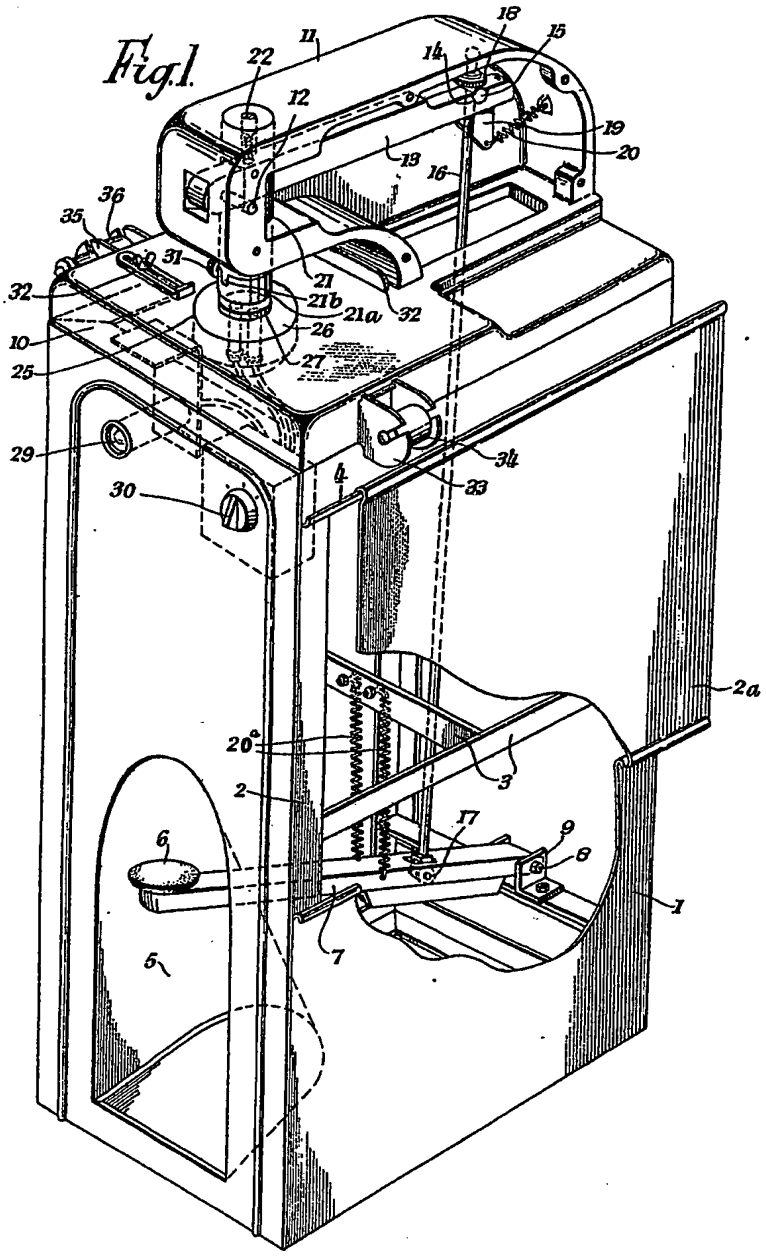
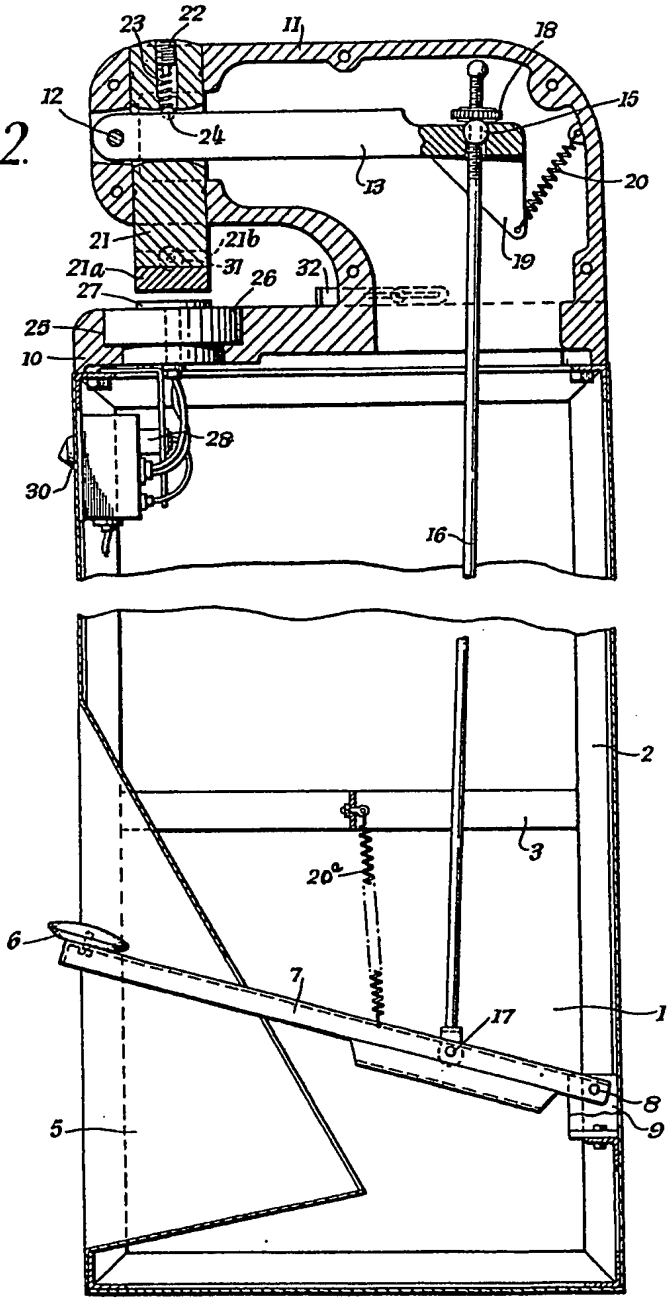


Fig.2.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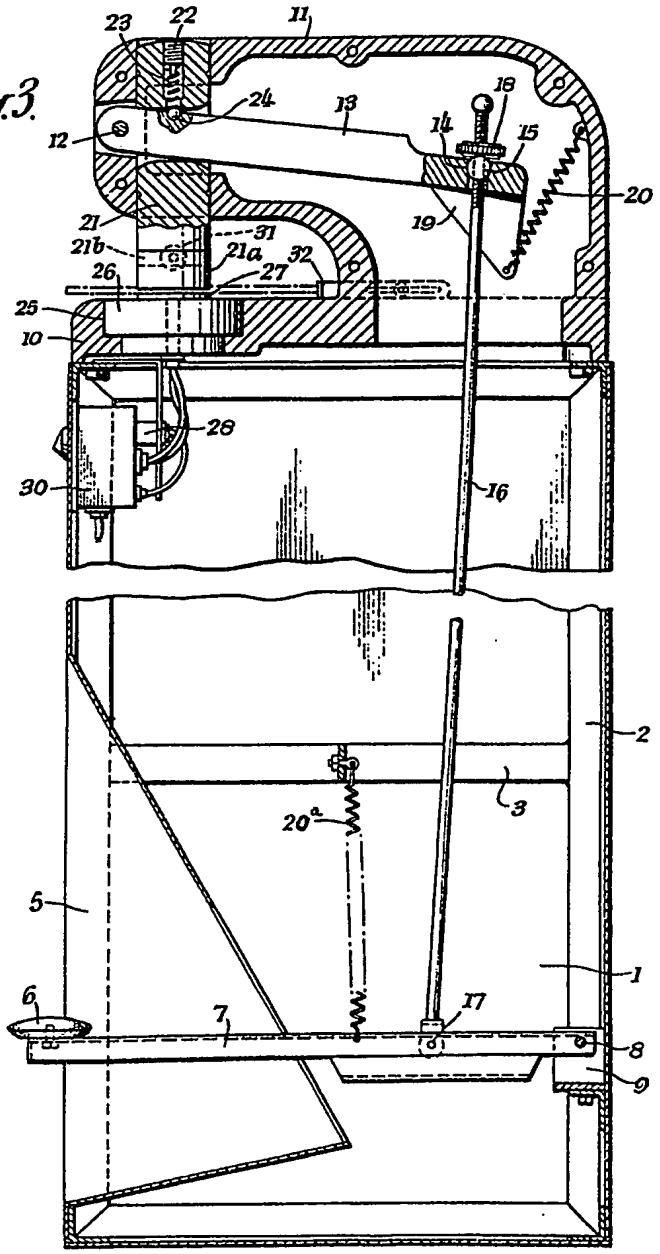
704,949 COMPLETE SPECIFICATION

3 SHEETS

This drawing is a reproduction of the Original on a reduced scale.

SHEETS 2 & 3

Fig. 3.



704949 COMPLETE SPECIFICATION
3 SHEETS This drawing is a reproduction of the Original on a reduced scale.
SHEETS 2 & 3

Fig.2.

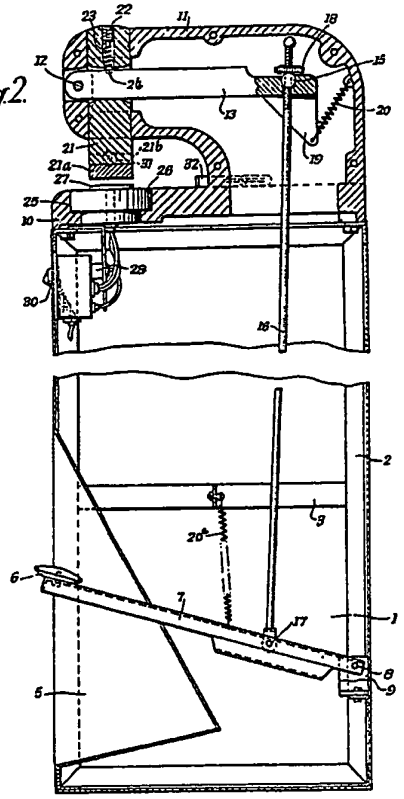


Fig.3.